

CM9760-KBD/
CM9760-KBR
System 9760™
Keyboard

Installation/
Operation Manual

C540M (6/98)



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REVISION HISTORY

<u>Manual #</u>	<u>Date</u>	<u>Comments</u>
C540M	6/97	Original version.
	3/98	Included KBR and expanded direct control instructions. Changed manual pagination. Added Section 1.2, Certifications.
	6/98	Added Section 1.2, Certifications.

1.1 IMPORTANT SAFEGUARDS AND WARNINGS

Prior to installation and use of this product, the following WARNINGS should be observed.

1. Installation and servicing should only be done by qualified service personnel and conform to all local codes.
2. Unless the unit is specifically marked as a NEMA Type 3, 3R, 3S, 4, 4X, 6 or 6P enclosure, it is designed for Indoor use only and it must not be installed where exposed to rain and moisture.
3. Only use replacement parts recommended by Pelco.
4. After replacement/repair of this unit's electrical components, conduct a resistance measurement between line and exposed parts to verify the exposed parts have not been connected to line circuitry.

The product and/or manual may bear the following marks:

Please thoroughly familiarize yourself with the information in this manual prior to installation and operation.

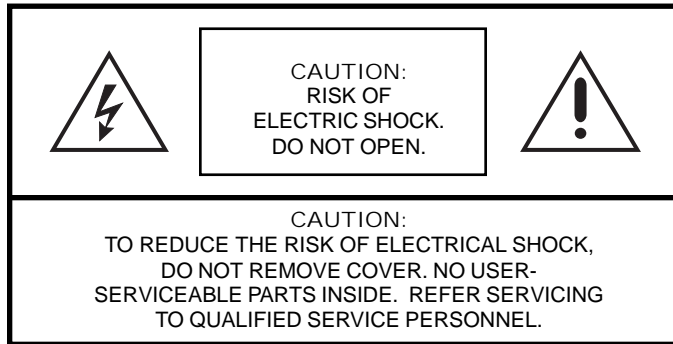
NOTE: This equipment has been tested and found to comply with the limits of a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.



This symbol indicates that dangerous voltage constituting a risk of electric shock is present within this unit.



This symbol indicates that there are important operating and maintenance instructions in the literature accompanying this unit.



1.2 CERTIFICATIONS

The products identified below have been tested and certified for agency compliance as noted.

Model	Agency Compliance Certification			
	CE	FCC	UL	CSA/cUL
CM9760-KBD-X	X	X		
CM9760-KBD		X		

Applicable CE, FCC, UL, and CSA/cUL directives/standards:

- 93/68/EEC–CE Mark Directive
89/336/EEC, 92/31/EEC–Electromagnetic Compatibility (EMC) Directives
- FCC–47 CFR, Part 15, Subpart B, Class A

2.0 DESCRIPTION

The CM9760-KBD/CM9760-KBR keyboard is the interface between the operator and the CM9760 system. It can be used to select and maneuver cameras, and to control a CM9760 system.

The keyboard is programmable, and can be used to create and execute macros. This gives the operator access to effective monitoring procedures for any CCTV application.

Many of the keys can be assigned both simple and complex functions. This allows the keyboard to be configured by end-users to suit specific monitoring environments (refer to Appendix G for specifications).

2.1 MAIN FEATURES

- User-friendliness provided by specially designed icons
- The ability to select and monitor any connected camera or video input
- Control of maneuverable cameras for pan and tilt functions (where appropriate equipment is fitted)
- Control of the camera iris for zoom and focus (where appropriate equipment is fitted)
- Control of camera auxiliary functions (where appropriate equipment is fitted)
- Control of peripheral devices such as VCRs, video printers, frame stores and video multiplexers
- Selection of macros to execute complex procedures
- The ability to arm and disarm alarms
- The ability to store and recall camera motion presets (where appropriate equipment is fitted, such as pan and tilt heads, and motorized zoom lenses)
- The ability to download user definable key configurations to and from other keyboards

2.2 MODELS

CM9760-KBD	Programmable keyboard which serves as the interface between the user/operator and the CM9760 system. 120 VAC, 60 Hz
CM9760-KBD-X	Same as CM9760-KBD except 230 VAC, 50 Hz
CM9760-KBR	Same as the CM9760-KBD, except it is the rack-mount version of the keyboard.
CM9760-KBR-X	Same as CM9760-KBR except 230 VAC, 50 Hz

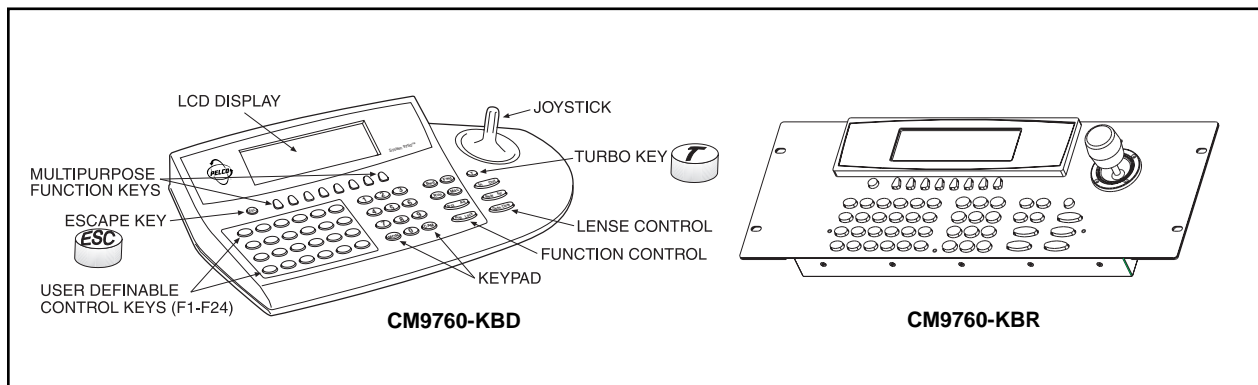


Figure 1. The CM9760-KBD/CM9760-KBR

2.3 PHYSICAL LAYOUT

The CM9760-KBD keyboard (see Figure 1) comprises:

- | | |
|---------------------------------|--------------------------------|
| 1. Liquid crystal display (LCD) | 4. User definable control keys |
| 2. Multipurpose function keys | 5. Function control |
| 3. Keypad | 6. Lens control |

2.3.1 LCD Display

The LCD is a four-line display, in which:

- | | |
|--------|---|
| Line 1 | Line 1 displays the video output (which is typically a monitor), and the video input source (which is often a camera). It also indicates whether or not a selected input is defined as a PTZ camera or VCR. |
| Line 2 | Line 2 is used to display the status of the last data entry. |
| Line 3 | Line 3 is used to display alarm messages, and other prompts. |
| Line 4 | Line 4 is used to display icons. A complete icon list is illustrated in Appendix B. The operational keyboard default Menu is shown in Appendix A. |

2.3.2 Multipurpose Function Keys

Icons indicate the functions to which each of eight **multipurpose function keys** lead. Their changing purpose depends upon the mode of operation. Illustrated below are the icons of the **default** menu, the highest level menu of the CM9760-KBD. The icons are selected using the **multipurpose function keys**.

2.3.3 Keypad

This section of the keyboard is a standard numeric keypad with added keys to select cameras and monitors.

2.3.4 User Definable Control Keys

This section of the keyboard contains the user definable control keys, F1-F24. The functions themselves can be varied according to the customer application and the type of CCTV installation.

All 24 **user definable control keys** are programmable using the steps provided in Section 3 of this guide.

Blank labels and a punched lexan decal overlay are provided as standard with the CM9760-KBD.

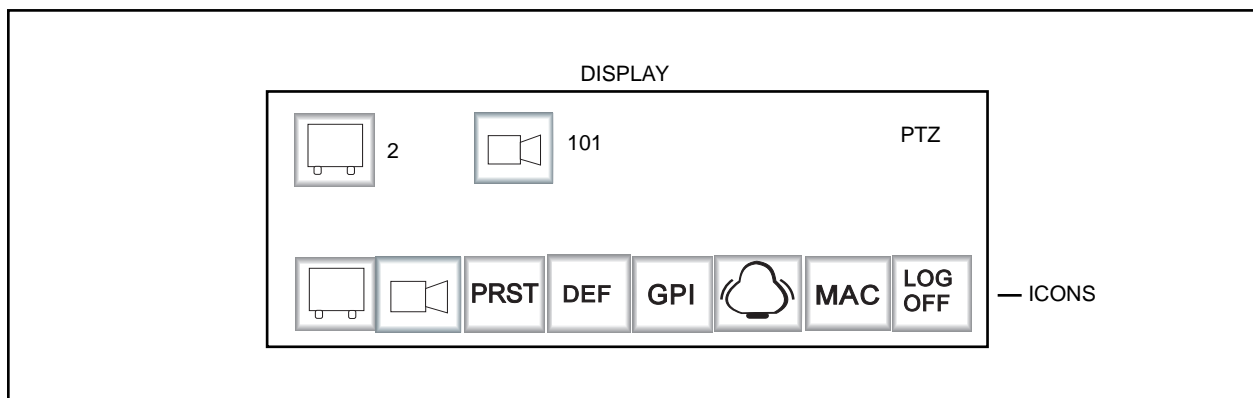








Figure 2. Default Menu Icons

2.3.5 Function Control

This section of the keyboard provides the following facilities:

	Backward step through available camera selections
	Forward step through available camera selections
	Selection, creation and execution of macros
	Rcl: recall previous selections Alt: cycle through inputs associated with election
	Prst: recall preset Lock: lock/unlock cameras to monitors

2.3.6 Lens Control

NOTE: The **turbo** button, , switches drives into high speed mode, **where they have this feature**.

This section of the keyboard is used to control cameras equipped with motorized zoom lenses and motorized pan-and-tilt units.

Using the CM9760-KBD keyboard, the operator can do the following:

- Zoom in/out
- Focus near and far
- Open and close the iris

The joystick is proportional, enabling variable speed drives (where fitted) to be speed controlled.

The proportional joystick provides operators with full control over the pan and tilt movements, from minimum to maximum speed. The speed is proportional to the amount by which the joystick is moved away from its rest (centered) location.

3.0 INSTALLATION AND SETUP

3.1 INSTALLATION (Refer to Figure 5 on the next page)

1. Ensure that all DIP switches are in the **OFF** position, as shown in Figure 3. The DIP switches are on the underside of the keyboard.
2. The RJ-45 connectors on the supplied Pelco power pack serve a dual function: (1) to provide power to the keyboard and (2), serve as a data path between the keyboard and the CM9760-CC1. Connect a “straight” or “parallel” cable (RJ-45 to RJ-45) between COM 1 on the keyboard and the RJ-45 keyboard input connector on the power pack (refer to Figure 5).
3. Connect the other “reverse” or “cross-wired” cable (also RJ-45 to RJ-45) between the remaining RJ-45 connector on the power pack and an appropriate RJ-45 Sercom port (most likely Com port 6) of the Sercom board occupying slot 1 on the rear of the Pelco CPU (CM9760-CC1).
4. Plug the power pack into a 120 VAC power source.
5. Turn the main power supply switch **ON**.

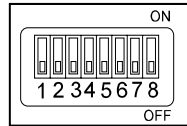


Figure 3. DIP Switches

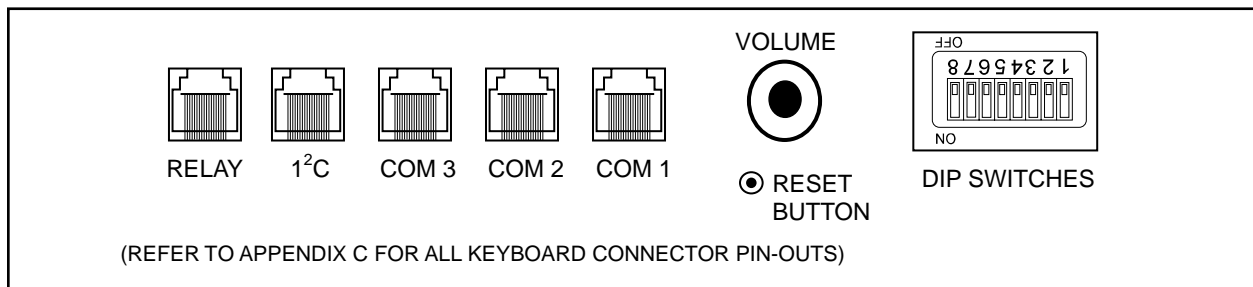


Figure 4. Com Ports and DIP Switches

3.2 SETUP

NOTE: *The DIP switches are on the underside of the keyboard (see Figure 4). The default setup PIN is 1234. It may be altered in **setup** mode. See Appendix E, Setup Mode Menu Tree.*

NOTE: *To restore factory default settings, set DIP switch positions 1, 2 and 8 to the ON position and re-cycle power.*

- The CM9760-KBD is configured using setup mode. In setup mode, it is possible to
- Nominate a PIN for entering setup mode
 - Nominate a PIN that provides access to features on the **define** menu
 - Calibrate the joystick
 - Adjust the brightness of the display
 - Set the data transmission speeds at which the keyboard’s three COM ports operate
 - Configure the internal relays and assign macros to them
 - Assign functions to **user-definable control keys**
 - Select **direct camera control** receiver/drivers.
 - Assign logical camera numbers to directly controlled cameras.
 - Download/upload the definitions of the **user-definable control keys** and **user defined icons** between keyboards
 - Adjust the time-out period
 - Select a host processor

3.2.1 To Activate Setup Mode

1. Set DIP switch 2 to the **ON** position
2. Enter your **setup** PIN.

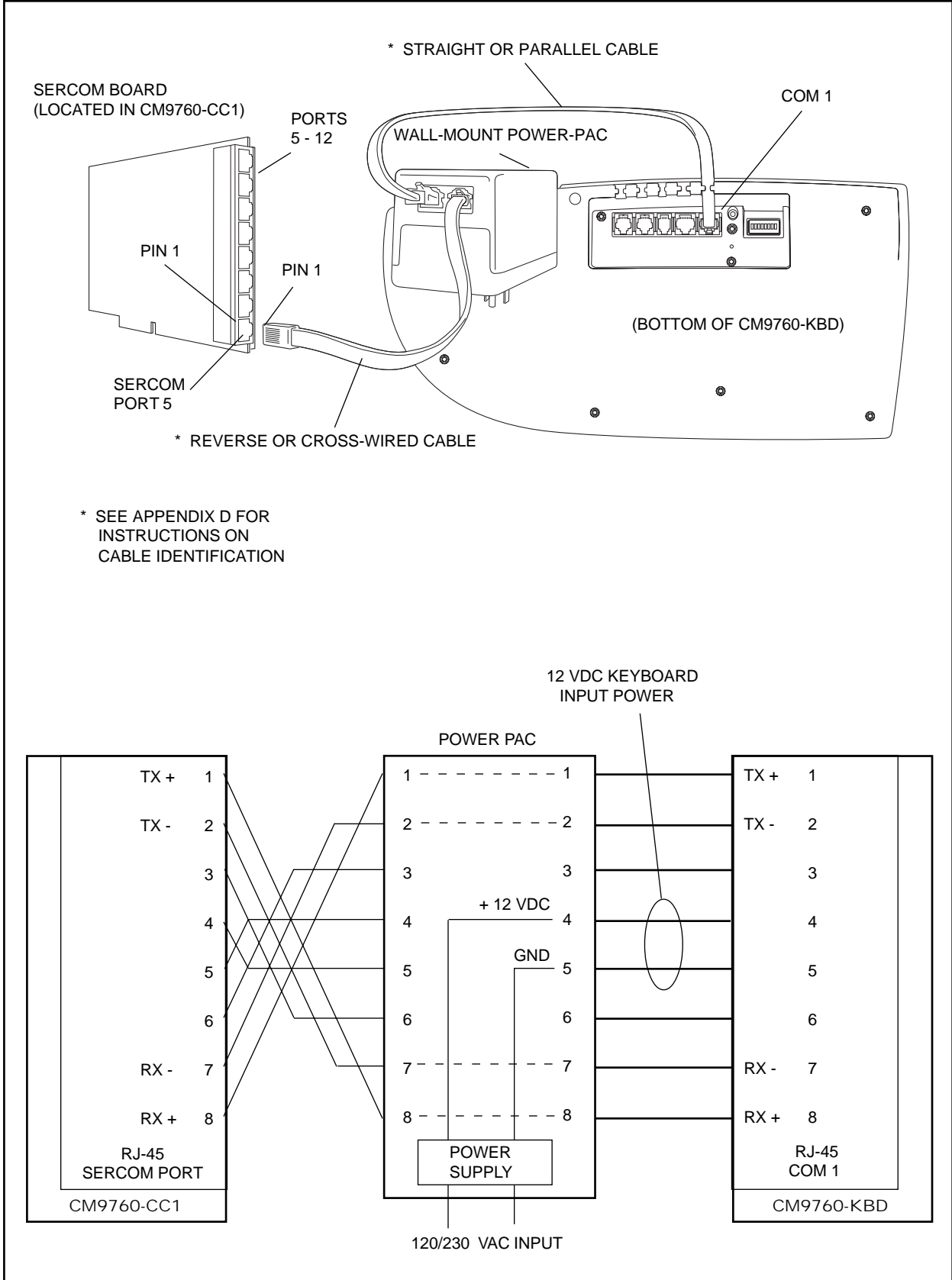
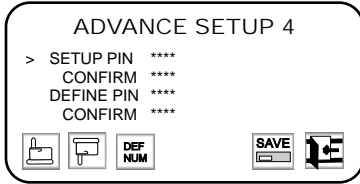


Figure 5. Basic Keyboard Setup Configuration and Wiring

3.2.2 To Leave Setup Mode






1. Select  and return DIP switch 2 to the **OFF** position.

3.2.3 Creating a Setup PIN



NOTE: A PIN is required to enter **SETUP** mode.








The factory settings for the CM9760-KBD include the default password 1234. An alternative password can be defined as follows:

1. While in **setup** mode, use  and/or  to locate **Advance Setup 4**.
2. Select , type a four-digit PIN, and select  once again.
3. Select Confirm, retype the PIN, and select  once again.

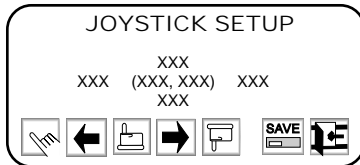
3.2.4 Creating a Define PIN

NOTE: A PIN is required to use the features that are accessible via the **DEFINE** menu.









The factory settings for the CM9760-KBD include the default password, 1234. An alternative password can be defined as follows:

1. In **setup** mode, use  and/or  to locate **Advance Setup 4**.
2. Select **Define PIN** using  and/or .
3. Select , type a four-digit PIN, and select  once again.
4. Select Confirm, retype the PIN, and select  once again.

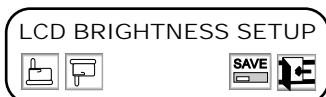
3.2.5 Calibrating the Joystick










To make the joystick operational, proceed as follows:

1. In **setup** mode, select .
2. With the joystick in the central default position, select .
3. Move the joystick fully left, and select .
4. Move the joystick fully right, and select .
5. Move the joystick fully down, and select .
6. Move the joystick fully up, and select .
7. Save the joystick configuration by selecting .
8. Select .

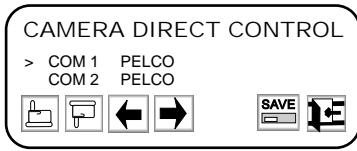
3.2.6 Adjusting the Display Brightness



NOTE: The display brightness can also be adjusted by selecting  from the define sub-menu. The define sub-menu is produced by selecting .

While in **setup** mode, the brightness of the display can be adjusted. This is done by selecting , after which the display may be brightened or darkened using  or . When satisfied with the brightness setting, press  followed by .

3.2.7 Direct Camera Control/Serial Port Speeds



Intercept® receiver/drivers can be connected directly to the CM9760-KBD. In this configuration, cameras are controlled directly by the keyboard, and not via an intermediate switching matrix controller. Thereafter they may be controlled directly.

The receiver/drivers are connected to COM 1 and/or COM 2. Up to 16 cameras can be connected to a single COM port, giving a maximum of 32.

Use Figure 6 as a guide for the physical connection of receiver/drivers and associated cameras to the CM9760-KBD for direct mode, then follow the below instructions for configuring the system in direct mode.

1. As before, enter direct setup by setting DIP switch 2 to the ON position, then enter you setup PIN number; the main menu screen, "SETUP MODE", will appear.
2. Press the multipurpose key under the **ADV** icon and advance to the "Advance Setup 1" screen.
3. Use and to navigate to the "host" row and use the arrow keys (,) to select "Direct Cam Ctrl."
4. Use the key to go to COM 1 and/or COM 2 and setup the keyboard COM ports for the correct baud rate. Save, then Exit this screen to return to the main menu "SETUP MODE" screen.

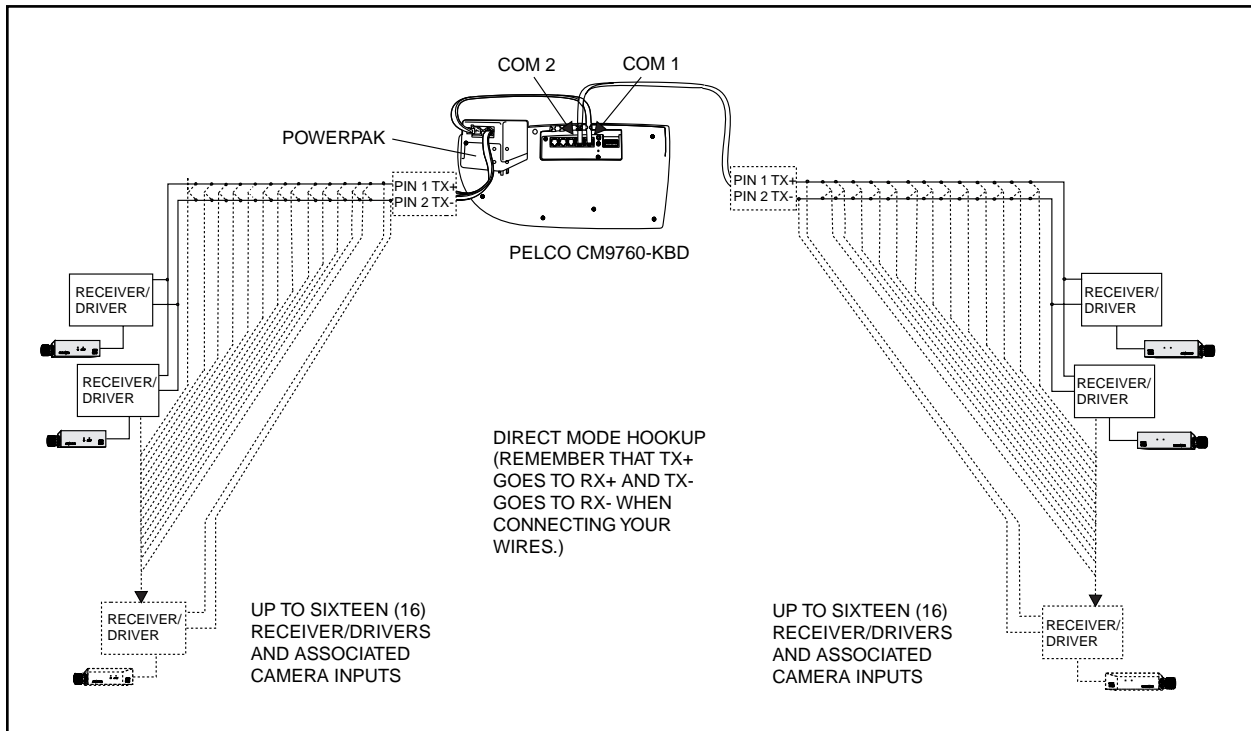
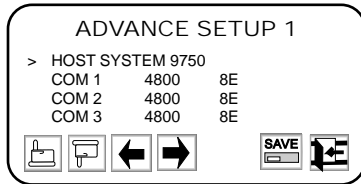


Figure 6. Direct Mode Hookup



NOTE: Proceeding beyond COM 1 or COM 3 using and/or causes the operator to arrive at a new setup page. It is possible to return to **Advance Setup 1** by using and/or .

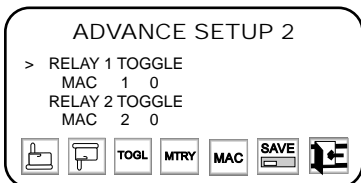
5. Select the camera icon, .
6. The next screen gives you a choice for "Camera direct control type." Change, if necessary, the receiver/driver type listed as being attached to COM 1 and/or COM 2 to the receiver/driver type you actually have connected to COM 1 and/or COM 2 (usually this is Pelco).
7. Continue with the key to enter the "Camera Assign" menu screen and configure the parameters as required for up to 32 physical cameras connected to COM port 1 (1-16) or COM port 2 (17-32). Use the functional key to change or add Logical numbers and use the function icon (if receiver is capable) to assign toggle or momentary attributes for applicable AUX numbers 1-8. Use the ESC key to back out of the AUX menu.
8. Save and return to the main "SETUP MODE" menu. Turn OFF DIP switch 2 first, then exit setup mode.

Serial Port Speeds

When it is necessary to adjust serial port speeds, do the following:

1. In **setup** mode, select to go to **Advance Setup 1**.
2. Select the appropriate COM port using and/or .
3. Choose the appropriate baud rate using and/or .
4. Having adjusted the baud rate(s), select and then .

3.2.8 Configuring the Relays



NOTE: When a relay is in toggle mode, a single key press will switch it either **ON** or **OFF**. In momentary mode, a relay will remain switched **ON** only while the appropriate key is held down.

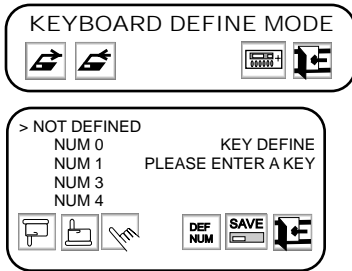
Each CM9760-KBD keyboard has two relays which can be used in conjunction with macros stored in the connected system, which will typically be the CM9760-CC1. Macros are used to automate sequences of events. A simple macro might present the operator with a view from one camera for five second, then switch to another camera for 10 seconds, and so on. More complex macros can automate lengthy and repetitive procedures, thus optimizing the collective CCTV system.

While in setup mode, it is possible to assign a macro to a relay, and also modify the way in which the relay is switched. The relays can be switched in two ways: either **toggle** or **momentary**.

To configure a relay:

1. Select from the **setup mode** menu.
2. Use to advance beyond COM 3, and enter **Advance Setup 2**
3. Select the relay using and/or .
4. Define the relay action to be **toggle** or **momentary** using or .
5. Select **Mac** (which is shown below the relay) using .
6. Select , and enter the macro number. Select once again.
7. Repeat for second relay if desired.
8. Having defined the relays, select followed by .

3.2.9 User Definable Control Keys



NOTE: *Many of the functions require an additional attribute in the form of a number, for which you will be prompted. To enter such as a number: select*

; type the number; then, select once again.

NOTE: *Section 3.2.11 shows how to download and upload definitions of the user definable control keys between keyboards.*

NOTE: *Several keys may be defined prior to saving.*

The **user definable control keys** can be assigned various functions such as the **enter** function. While in **setup** mode, functions can be assigned to the **user definable control keys** as follows:

1. With the keyboard in **setup** mode, select to switch to **keyboard define** mode. Select once again to define individual keys.
2. Press the **user definable control key** to which a function is to be assigned. If the pressed key is already defined, its assigned function will be shown.
3. Using and/or , scroll the list of available functions. Align the desired function with the arrow.
4. Select function by choosing .
5. To save **user definable control key** settings, select .
6. Having defined and saved the desired keys, select .
7. Select .

3.2.10 Setting Up a Receiver/Driver

NOTE: *Do not intermix receiver/drivers using a single port; usable receiver/drivers comprise those using RS422 Pelco P-type protocol. This would include most Legacy®, Intercept® and System 9750/9760 ERD receiver/drivers.*

1. In **setup** mode, select from the **setup mode** menu.
2. Select COM 1 using and/or .
3. Select the correct receiver/driver type using and/or .
4. If necessary, repeat steps 2-3 to select the receiver/driver connected to COM 2.
5. Select .
6. Select .

3.2.11 Downloading Keyboard Setups

(See Appendix D for Keyboard Hook-up Details)

The CM9760-KBD keyboard setup can be downloaded and uploaded between keyboards. A keyboard setup can be uploaded to many other keyboards, avoiding the need to configure each keyboard individually using **setup** mode. Keyboard setup information can be downloaded/uploaded using one of two configurations:

1. Keyboard to keyboard.
2. Through the CM9760 system.

Setup information that can be downloaded/uploaded includes:

1. **User definable control keys.**
2. Relay configurations.
3. Direct camera control parameters.

- Up to ten user-defined icons.

To upload a keyboard setup to all keyboards connected to a specific CM9760 system in a multiple-node CCTV installation, you must know the appropriate node number.

To upload a keyboard setup to a specific keyboard connected to a specific CM9760 system in a multiple-node CCTV installation, you must know the keyboard number (1-96) and the node number.

3.2.12 Assigning Logical Camera Numbers

CAMERA ASSIGN									
PHYSICAL	LOGICAL	1	2	3	4	5	6	7	8
> 0	0	T	T	T	T	M	M	M	M
1	0	T	T	T	T	M	M	M	M
2	0	T	T	T	T	M	M	M	M
3	0	T	T	T	T	M	M	M	M

NOTE: *Physical cameras 0-15 are connected to COM 1, while physical cameras 16-31 are connected to COM 2.*

AUX ASSIGN									
PHYSICAL	LOGICAL	1	2	3	4	5	6	7	8
0	0	T	T	T	T	M	M	M	M
> 1	0	T	T	T	T	M	M	T	M
2	0	T	T	T	T	M	M	M	M
3	0	T	T	T	T	M	M	M	M

NOTE: *Each camera receiver/driver may have up to eight relays, the action of which can be specified as either momentary or toggle.*

KEYBOARD SETUP	
> TARGET	9750/9760
NODE	LOCAL
KBD#	ALL/ANY

KEYBOARD SETUP	
> TARGET	KB - KB COM 1
NODE	
KBD#	

Logical (user-defined) camera numbers can be assigned to directly controlled cameras. This avoids the need to change physical camera numbers. To assign a logical camera number:

- In **setup mode**, select .
- Select the **camera assign** screen using and/or .
- Select the physical camera number using and/or .
- Select .
- Enter a logical camera number.
- Select .

To configure the relays of directly controlled cameras:

- Select .
- Use the auxiliary icons, such as , to set the camera's relay action to either toggle or momentary status.
- Press .
- Repeat steps 3-9 to configure additional cameras.
- Select .

3.2.12.1 Downloading Keyboard to Keyboard

In order to download/upload setups directly between keyboards, the keyboards can be connected using COM 1 and/or COM 2 (the ports are interchangeable in this case, that is, COM 1 or COM 2 to COM 1 or COM 2) or through COM 3.

The COM port sockets are on the underside of the keyboard (see Figure 4).

The data pin connections are shown in Figure 5.

Setups are downloaded keyboard to keyboard by:

- In **keyboard setup** mode, use and/or to select the COM port that is being used to download setup information:
 - KB-KB COM 1
 - KB-KB COM 2
 - KB-KB COM 3
- To download setup information **from** a connected keyboard select ,
 or,
 to upload setup information **to** a connected keyboard, select .











NOTE: Enter 0 to select **all** nodes, and enter 9999 to select the **local** node only.

The Keyboard LCD will indicate that it is cycling through the camera map settings; when finished, the LCD will display "End of Tx."

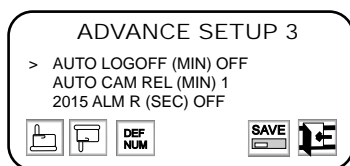
3.2.12.2 Downloading Through the CM9760 System

Setups can be downloaded/uploaded using keyboards connected to 9760 systems. In this configuration, it is possible to upload the setup of a single keyboard to many other selected keyboards simultaneously. It is even possible to upload the setup of a single keyboard to all keyboards in a CCTV installation concurrently.

A CCTV installation may include multiple 9760 systems, each of which is referred to as a **node**. The nodes are designated numbers from 1 to 9998. To download/upload keyboard setups through the 9760 system:








1. In **keyboard setup** mode, select CM9760 using  and/or .
2. Using , select **Node**.
3. Select .
4. If necessary enter a node number in the range 1 to 9998.
5. Select  once again.
6. Using , select **kbd#**.
7. Select .
8. Enter a keyboard number in the range 1 to 96, or enter 0 to select all keyboards attached to selected node(s).
9. Select .
10. To download setup information from a connected keyboard, select  **or**,
to upload setup information to a connected keyboard, select .

3.2.13 Adjusting the Time-out Period

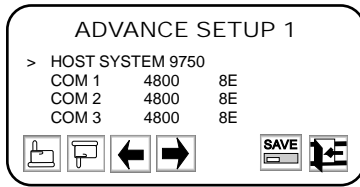



NOTE: The automatic log-off function can be disabled by entering 0, 1, or 255.

The period of keyboard inactivity which invokes the automatic log-off function can be modified. Operators may be timed out after periods of inactivity ranging from 1 to 254 minutes. To specify a time-out period:

1. Select  from the **setup mode** menu.
2. Go to **Advance Setup 3** using  and/or .
3. To enter a time-out period, select , and type a duration between 2 and 254 (minutes).
4. Select  once again.
5. Select .
6. Select .

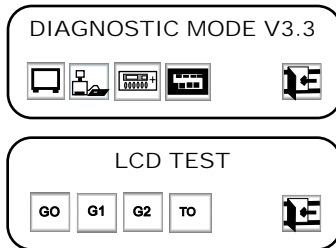
3.3 DIAGNOSTICS MODE









Diagnostics mode is activated when DIP switch 1 is **ON**. To leave diagnostics mode, select  and return DIP switch 1 to the **OFF** position. Diagnostics mode allows you to test the:

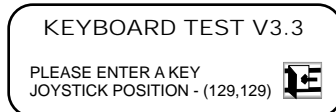
1. LCD display
2. Keys
3. Serial ports (not available at this time)
4. DIP switches

3.3.1 Testing the Display





1. While in diagnostics mode, select .
2. Select  to test Graphic Page 0.
3. Select  to test Graphic Page 1.
4. Select  to test Graphic Page 2.
5. Select  to test the text page.
6. Select .

3.3.2 Testing the Keys



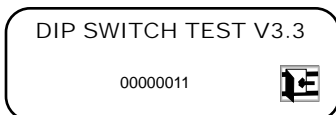
NOTE: When testing the keyboard, pressing the **user definable control keys** causes their assigned functions to be displayed.

1. While in diagnostics mode, select .
2. Press each key and check that the display indicates the correct key.
3. Select .


3.3.3 Testing the Serial Ports

(For factory use only)

3.3.4 Testing the DIP Switch



NOTE: When switched ON, functioning switches will change the correspondingly displayed '0' to a '1'. For instance, when switch 2 is ON, the display should read: 00000011.

1. Select .
2. Beginning with switch 2, set each switch to **ON** while observing the display.

4.0 OPERATION

4.1 INTRODUCTION

This chapter describes the operation of a CM9760 System using the CM9760-KBD. The following is assumed:

1. The CM9760 system is functional.
2. Initial power-up has been completed.
3. CM9760 setup files have been programmed.

You should also have the following information:

1. A PIN that permits logging on
2. If necessary, a PIN that provides access to the **setup** functions
3. If necessary, a PIN that provides access to the **define** menu
4. The logical camera number list, complete with identification names
5. The logical monitor number list, complete with identification names
6. A list of all macros
7. A list of all peripheral devices connected (VCRs, video printers, GPIs)
8. A list of alarms connected to the system
9. A list of presets for each relevant camera

4.2 OVERVIEW

The CM9760 keyboard differs from conventional keyboards in that icons are used to select required functions.

The icons simplify operation by indicating the exact functions which the associated **multipurpose function keys** will implement.

Appendix B illustrates the Pelco 9760 icons, while Appendix A shows the menu hierarchy.

4.3 LOGGING ON





To operate the keyboard, you must enter your four-digit PIN.

Upon entry of a valid PIN the keyboard will ask you to select the monitor you wish to view. To select a monitor:

1. Using the numeric keypad, enter the required monitor number.





2. Press  .

4.4 LOGGING OFF


To log off, select  from the **default** menu, which can be reached by pressing . This will result in the prompt **Are you sure you want to log off?** Select  to log off, or select  to remain logged on.

Alternatively, select monitor 0 to log **OFF** from any menu level without the *log-off* prompt.





4.5 SELECTING MONITORS

1. Using the keypad, enter a monitor number, and then press .
or,
select  from the **default** menu.
2. Cycle through the available monitor sequence using  and .


If a **user definable control key** has been assigned the **enter** function, monitors can be selected as follows:



1. Press .
2. Enter a monitor number.
3. Press the **user definable control key** that has been assigned the **enter** function - **this can be located by referring to the decal.**

4.6 SELECTING CAMERAS


1. If necessary, select  from the **default** menu, to reach the **camera** sub-menu.
2. Cycle through available cameras using  and 
or,
using the numeric keypad, enter a camera number and press .

If a **user definable control key** has been assigned the **enter** function, cameras can be selected as follows:

1. Press .
2. Enter a camera number.
3. Press the **user definable control key** that has been assigned the **enter** function - **this can be located by referring to the decal.**

 and  can also be used to cycle through cameras.

4.7 LOCKING CAMERAS OR INPUT DEVICES

To lock a camera to a monitor (or other output device), select the appropriate camera or input, then select .

4.8 GROUP INPUT SELECTION

The CM9760-KBD includes 24 **user definable control keys**. The **user definable control keys** can be used for **group input selections** such as:

- | | |
|----------------|---------------|
| 1. Car Park 1 | 5. Foyer 1 |
| 2. Car Park 2 | 6. Foyer 2 |
| 3. Mezzanine 1 | 7. VCR Bank 1 |
| 4. Mezzanine 2 | |

Upon selection of any of the above **group input selections** (to a single monitor), the keyboard will default to the lowest logical input number within the selected group.

In a casino application, the **user definable control keys** might be assigned the following group selections:

- | | |
|---------------|---------------|
| 1. Black jack | 4. Keno |
| 2. Roulette | 5. Count room |
| 3. Craps | 6. Baccarat |

User definable control keys might also be used to interface the operator(s) (either in groups or individually) with the following:

1. VCR - to provide remote control of VCR functions
2. Multiplexer - to provide remote control of multichannel displays
3. Frame stores - to provide remote control of freeze and loop functions


Upon selection of a VCR, the **multipurpose function keys** are assigned appropriate control functions. The functions are indicated by the icons on line 4 of the display.

The **user definable control keys** can be allocated specific area selections.

Subsection 4.8.1 demonstrates this through an example.

4.8.1 Selecting Group Cameras

NOTE:  invokes the default menu, or the top-level menu.

1. Using the numeric keypad, enter group number.
2. Press the appropriate **user definable control key** (for example, **car park**).
3. To toggle to other associated cameras (or other types of inputs), use .
4. Control of associated functions is now possible using the **multipurpose function keys**.

4.9 OPERATING PTZ CAMERAS

The controls for PTZ cameras are located on the right-hand side of the keyboard (see Figure 1). If a selected camera is a PTZ type, the operator will be informed via a display prompt.

The joystick is proportional, enabling variable speed drives (where fitted) to be speed controlled.

The proportional joysticks give operators full control over the pan and tilt movements, from the minimum to the maximum speed. Speed is proportional to the amount by which the joystick is moved away from its rest (centered) location.



enables immediate high speed operation.

Where a fixed speed pan/tilt drive unit is installed, the joystick will provide only directional control.

The various functions of a PTZ camera may be controlled as follows:

1. To zoom in or out, use .
2. To focus near or far, use .
3. To open or close the iris, use .

NOTE: *It is possible to operate the joystick simultaneously with a lens function. The **iris open and close** button only functions with the appropriate lens fitted.*

4.10 OVERRIDING CAMERA CONTROL

NOTE: *“**Busy operator**” will appear if another operator has greater access rights.*

1. With the **camera** sub-menu on screen, press and hold .
2. Move the joystick, or press a key on the camera control section of the keyboard.

4.11 OVERRIDING CAMERA LOCKS

NOTE: *“**Override Denied**” will appear if another operator has greater access rights.*

1. With the **camera** sub-menu on screen, press and hold .
2. Press .

5.1 PRESET CAMERA POSITIONS

NOTE: *Presets are only possible when receiver/drivers, zoom lenses and/or pan/tilt heads are fitted with preset facilities.*

A preset camera position is a set of parameters which define pan, tilt, zoom and focus adjustments. A preset camera position can be recalled as follows:

1. Manually, using the CM9760 keyboard
2. Automatically as the result of an alarm condition (refer to the 9760 alarm file)
3. From a macro command




5.1.1 Recalling Presets

1. Using the keypad, enter the preset number.





2. Select  or press .

5.1.2 Creating Presets

NOTE: *Your define PIN need only be entered once during operation. The default PIN is 1234. To alter the define PIN, see Section 3.0, Installation and Setup.*

1. Display the **define** sub-menu by selecting  from the **default** menu.
2. Enter your four-digit **define** PIN.
3. Using the joystick and **camera control** keys, set up the camera preset required.
4. Using the keypad, enter a preset number between 1 and 99.
5. Select .
6. Select  to revert to the **default** menu.

5.1.3 Deleting Presets

1. Display the **preset** sub-menu by selecting  on the default menu, or by pressing .
2. Using the numeric keypad, enter the number of the preset that you wish to delete.
3. To delete the preset, select .
4. Select  to revert to the **default** menu.

5.2 VCR CONTROL

VCRs can be connected and controlled via a CM9760 system and CM9760 keyboard in the following configurations:

1. Via a start/stop signal from the Pelco Alarm Interface Unit (no full control)
2. Via a Relay Interface unit, enabling remote control using the CM9760 keyboard
3. Via a Pelco Infra-Red Control System, enabling remote control using the CM9760 keyboard

VCRs can be controlled from the CM9760 keyboard if


1. The VCRs have been modified appropriately. For instance, it might be necessary to add hardware that provides alarm signal feedback.
2. Appropriate Pelco interface equipment is included.
3. VCR video outputs are connected as inputs to the Pelco CM9760 System.

5.2.1 VCR Recording with the Pelco Alarm Interface Unit (AIU)

Manual operation: in this configuration the VCR is connected from a CM9760 output in series to a video monitor. With an appropriate Pelco installation, and where a **user-definable control key** has been allocated the appropriate VCR function, it is possible to record footage as follows:

1. Press  .

The corresponding key will illuminate, while the Alarm Interface Unit (AIU) will trigger the VCR to start recording.

2. To stop the VCR, press  once again.

5.2.2 VCR Control Via the Pelco IR Controller

In Pelco IR-based CCTV installations, the CM9760 keyboard can be used to select VCRs and to operate their standard functions. VCRs may be controlled using the **multipurpose function keys** that select the VCR icons:



Via the Pelco IR controller, a single general purpose interface (GPI) is used to control four VCRs, and a maximum of up to 32 GPIs can be accommodated by a single IR controller.

Up to 16 **IR Controllers** can be connected to a single CM9760 system. Sixteen fully populated IR Controllers provide control over 2048 VCRs.

To control VCRs, see Section 5.3 GPI control.





5.3 GPI CONTROL

NOTE: *Peripheral devices can be operated manually, or via macros (refer to Section 5.4).*

A GPI can control up to eight relays. Relays are controlled from the auxiliary keys on the CM9760 keyboard. A list of all GPIs and auxiliary keys should be available from your manager or security supervisor.

5.3.1 Selecting GPIs

NOTE: *If the GPI number is valid, GPI n will be displayed (where n is the GPI number). If the GPI has not been installed, GPI not present will appear. If access to the GPI has been denied to that operator, GPI denied will appear.*

1. Display the **GPI** sub-menu, by selecting  from the **default** menu.
2. Type the GPI number using the keypad and then press , (or other **user definable control key** that has been assigned the **Enter** function), or press the **GPI** key.
3. If the GPI number is valid, select the appropriate Aux channel, such as , so as to operate the peripheral device.
4. Having completed all operations, select .

5.4 MACROS



NOTE: *A macro will not execute if it calls for the use of a camera or monitor which is already controlled by a user via a keyboard. The macro will not run until control is released to it by the operator. To accomplish this, either:*
(1) *Backward or forward step to a non-PTZ camera, or*
(2) *Press the "MON" or "CAM" button.*

Macros are sequences of commands or steps. A list of macros should be available from your manager or security supervisor.

When a macro is run, the steps programmed into that macro are performed. Macros can be run manually or automatically. Automatic operation can be as a result of alarms, or the reaching of specific times or dates.



5.4.1 Loading Macros

A macro can be loaded as follows:

1. Ensure that the **default** menu is displayed.
2. Enter the macro number.
3. Select  or press .

When a macro completes all its steps, it stops and will only run again if restarted (refer to Section 5.4.3). If the macro is continuous, it will run until cleared or halted.






4. To return to the **default** menu, select .

When the CM9760 keyboard is in normal mode, the selection of cameras by a macro can be overridden. Selecting  and  on the **macro** sub-menu causes running macros to be displayed.







NOTE: *If a valid macro number is entered, "Macro n" will appear, and the macro will run. If an invalid macro number is entered, "Macro not present" will appear. If the operator has insufficient access rights, "Access denied" will appear.*

5.4.2 Pausing Macros

To pause a macro:





1. Select  to display the running macro number.
2. Select  and  to step through macros that have been loaded.
3. When the required macro is selected, ensure that it is running by referring to the display.
4. If the macro is running, halt it by selecting  .
5. Select  to revert to the default menu.

5.4.3 Restarting Macros

1. Select  to display the macros.
2. Using  and  , step through the loaded macros.
3. If  is highlighted, the macro is halted. Select  to restart the macro.
4. Select  to revert to the *default* menu.








5.4.4 Finding Macros

To find a loaded macro:

1. Select  from the default menu.
2. Using  and  , step through loaded macros to find that required.
3. Having located a loaded macro, select  to revert to the default menu.






5.4.5 Deleting Macros

To delete a macro:

1. Using the numeric keypad, enter the required macro number.
2. Press  to display the *macro* sub-menu.
3. Select  to delete the specified macro.
or,
1. Select  from the *default* menu.
2. Step through the loaded macros using  and .
3. With the appropriate macro selected, choose  in order to delete it.
4. Press  to return to the *default* menu.









5.4.6 Creating Temporary Macros

When programming a macro, it is possible to do the following:

- **Single step** through a macro with  and .
- Delete a current macro step using .
- Insert a macro step before the current step using .
- Add a macro step to the end of a macro using .





NOTE: *If the entered macro number has been allocated, the **Macro Defined** prompt will be displayed.*

Using macros, camera sequences can be programmed directly from the CM9760 keyboard. To program a macro:

1. Select  from the **default** menu.
2. If necessary, enter your **define** PIN.
3. Select  to display the **macro program** sub-menu
4. Enter a macro number.
5. Press .
6. If necessary, enter a monitor number using the keypad.
7. If necessary, enter a camera number using the keypad.
8. Enter a **dwell** period using the keypad, and then select .
9. To enter another step, select  or press , and repeat steps 6 to 8.
10. Select  to store and execute the macro.
11. Select  to revert to the **default** menu.




5.5 VIDEO LOSS

A camera malfunction which causes the loss of a video signal may alert the operator, or trigger an alarm. Using the *video loss* function, such a faulty camera can be disabled if required. To disable or enable a camera:

1. Select  from the **default** menu.
2. If necessary, enter your **define** PIN.
3. Select .
4. From the **video loss** sub-menu, enter the camera number and select  once again.
5. Enable or disable the camera by selecting .

NOTE:  indicates that the camera is disabled.






An alternative method of disabling a camera is:

1. Enter the camera number.
2. Select  from the **default** menu.
3. If necessary, enter your **define** PIN.
4. Select .
5. Enable or disable the camera by selecting .

5.6 SETTING THE TIME AND DATE

NOTE: *Care should be taken when the system is networked, because changing the time/date on any CM9760-KBD keyboard will alter the time for the entire system. Approval should be sought from the appropriate authority before making such changes.*


The time and date can be changed from the 9760 keyboard. Time and date information is stored in the CM9760 system. To change the time and date:

1. Select  from the **default** menu, in order to call up the **program** sub-menu.
2. If necessary, enter your **define** PIN.
3. Select  .
4. Enter the day, month and year. For example, to enter the fifth of January 1997, type 05 01 97.
5. Once again, select  .
6. Enter the hour, minute and second in the 24-hour format. For example, if it is 8.00 pm, then enter 20 00 00.
7. Select  .
8. Select  .

The new date and time information will be updated on all equipment in the system. It may take up to one minute for these changes to be updated on monitors.

5.7 CAMERA SEQUENCES

Camera sequences are comparable with macros. They may include footage of a fixed duration from a sequence of cameras. For example, the car park might be monitored for five seconds, the lobby for ten seconds, and so on.

Using  on the **define** menu, it is possible to create a camera sequence by the same techniques employed to program macros (see Section 5.4).

Camera sequences are assigned to monitors. They are invoked when the assigned monitor is selected. Resultant camera sequences are paused and resumed using



Alarms can be armed or disarmed from the CM9760 keyboard. Alarms which are armed using the CM9760 keyboard affect only the operators responsible for them. Such operators receive alarm messages and are able to reset these alarms when triggered.

The following Sections (6.1 thru 6.5) relate to alarms when the CM9760 keyboard is connected to the Pelco CM9760 system.

6.1 ARMING ALARMS

NOTE: *The default **define PIN** is 1234. See Section 2.0 about defining alternative define PINs.*

NOTE: *Alarms armed using the CM9760 keyboard will **need to be re-armed** if the CM9760 keyboard is turned **OFF**. Macros are usually used to arm alarms.*

A list of the logical alarm numbers should be available from your manager or security supervisor. To arm an alarm:


1. Enter the logical number of the required alarm, and press the **Alarm key**

or select  .

Alarm n (where n is the alarm number) will be displayed if the entered alarm number is valid

Alarm denied will appear if access to the alarm has been denied to the operator

Alarm not present will appear if the alarm has not been programmed into the system. (Refer to the Alarm File)

2. Select  .

3. If necessary, enter your *define* PIN.

6.2 DISARMING ALARMS


1. Enter the logical number of the required alarm, and press the Alarm key or

select  .

Alarm n (where n is the alarm number) will be displayed if the entered alarm number is valid.


Alarm denied will appear if access to the alarm has been denied to the operator.







Alarm not present will appear if the alarm has not been programmed into the system. (Refer to the Alarm File).

2. Select  .


3. If necessary, enter your **define** PIN.

or,


NOTE:  is highlighted when an alarm is armed.

1. Select , to display the *alarm* sub-menu. Select an alarm using  and .
2. Select .
3. Enter your **define** PIN.
4. To disarm more alarms repeat steps 1 to 3.
5. Having finished disarming the alarms, select  or press .




6.3 ALARM STATUS

NOTE: If  is highlighted, the alarm is armed.

To see if a specific alarm is armed:

1. Enter the **logical number** of the alarm whose status you wish to query.
2. Select .

To find all armed alarms:

1. From the **default** menu, select  to display the **alarm** sub-menu.
2. Use  and  to step through all alarms.
3. Having gained the status of the alarms, select or press.


6.4 RESETTING ALARMS

NOTE: To reset an alarm correctly, the operator must be given access to the alarm.





A triggered alarm causes a continuous tone to sound. This alerts all operators who have access to the alarm. Alarms can be programmed to start a macro, or to switch a camera to a particular monitor.

When an alarm is triggered, it must be reset by each operator who has the alarm currently armed and displayed.

6.5 RESETTING TRIGGERED ALARMS

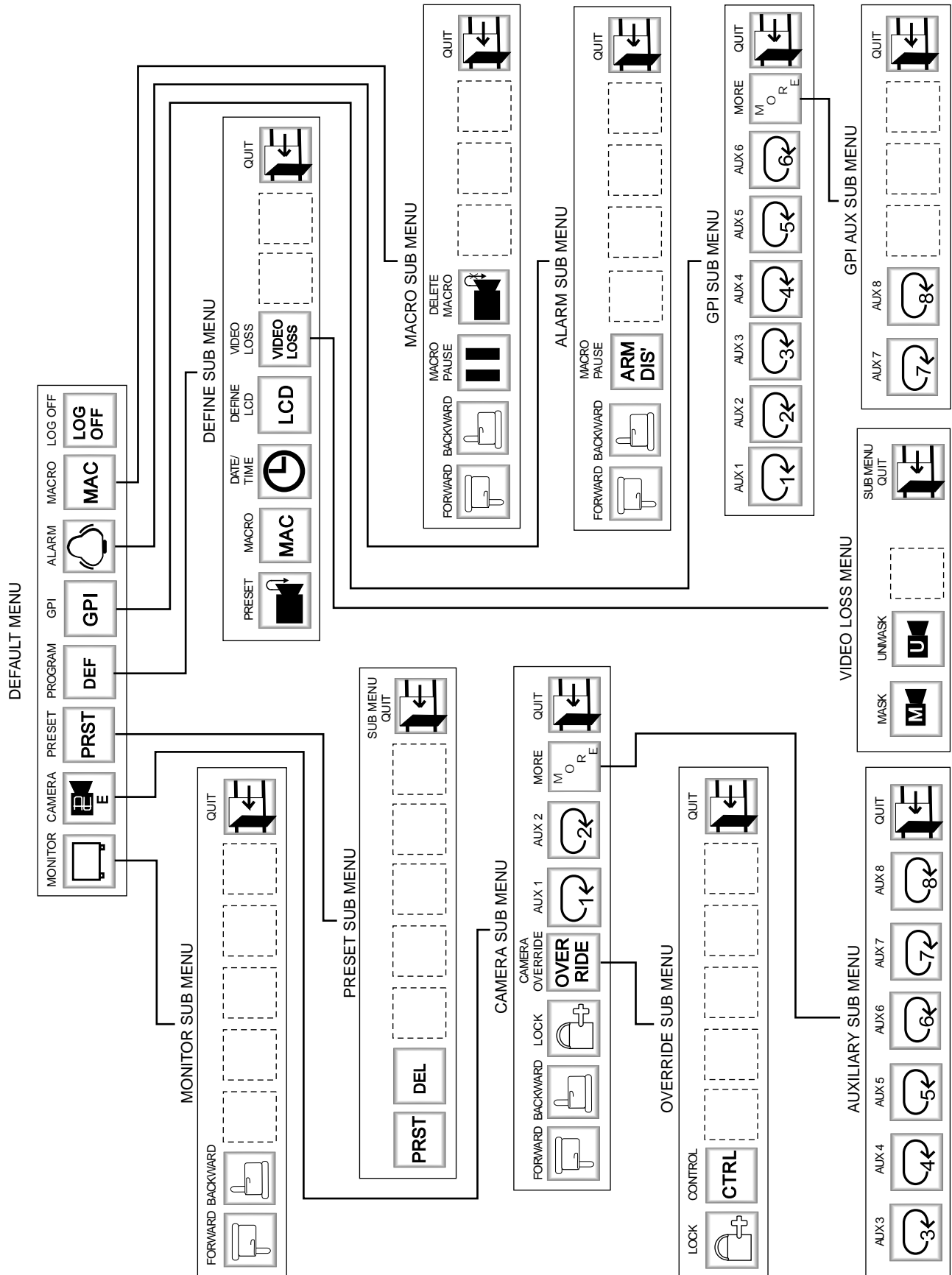
NOTE: To mute the alarm, select .

NOTE: The alarm volume can be altered using the level control on the underside of the keyboard. (See Figure 3)


















































1. If the alarm is sounding, select  to display the **alarm** sub-menu. The triggered alarm is shown on line 3 of the display.
2. If it is necessary to pause the alarm, select .
3. To reset a triggered alarm, enter its logical number and select  **or,**
to clear all triggered alarms, select .

- Appendix A. Keyboard LCD Default Menu and Tree Listing
- Appendix B. Icon Legend
- Appendix C. Keyboard Connector Pin-Outs
- Appendix D. Keyboard to Keyboard Cabling Connections
- Appendix E. Setup Mode Menu Tree (DIP Switch 2 ON)
- Appendix F. Diagnostic Mode Menu Tree (DIP Switch 1 ON)
- Appendix G. CM9760-KBD Specifications

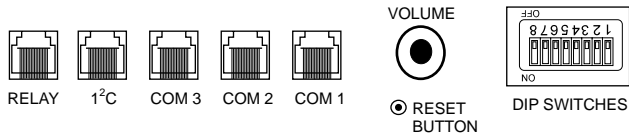
Appendix A. Keyboard LCD Default Menu and Tree List



Appendix B. Icon Legend

	LOG OFF		AUX 8, RELAY 8		LOCK INPUT TO AN OUTPUT
	PIN SELECTION		VCR FAST FORWARD		DEFINE PROGRAMMING
	CAMERA SELECTION		VCR REWIND		MACRO SELECTION
	MONITOR SELECTION		VCR PLAY		SELECT FOR KEYBOARD SETUP
	GROUP CAMERA SELECTION		UNMASK		CAMERA CONTROL OVERRIDE
	FWD STEP		VCR STOP		RESET KEYBOARD
	BWD STEP		VCR RECORD		GPI SELECTION
	CAMERA PRESET		VCR PAUSE		UNLOCK AN INPUT TO AN OUTPUT
	DELETE CAMERA PRESET		NEXT AUX		DEFINE NUMBER
	GO TO A PRESET		TIME/DATE SETUP		JOYSTICK
	MASK		QUIT		KEYBOARD DEFINE
	AUX 1, RELAY 1		MUTE ALARM		RELAY TOGGLE
	AUX 2, RELAY 2		LCD ILLUMINATION LEVEL		RELAY MOMENTARY
	AUX 3, RELAY 3		ALARM		
	AUX 4, RELAY 4		RESET INDIVIDUAL ALARMS		
	AUX 5, RELAY 5		RESET ALL ALARMS		
	AUX 6, RELAY 6		ARM ALARMS INPUTS		
	AUX 7, RELAY 7		DISARM ALARMS INPUTS		

Appendix C. Keyboard Connector Pin-Outs



RS-422 Serial Port

Main port used for power into keyboard, and for comm's link to Pelco CM9760-CC1 CPU. It is also used to drive Camera Control Receiver/ Drivers in direct mode. These I/O lines are connected to 8 way RJ socket JP1 as shown below. Incoming DC is also brought in via this connector.

JP1 Pin	Function	JP1 Pin	Function
1	RS422 Tx +	5	Gnd (0 VDC in)
2	RS422 Tx -	6	-
3	-	7	RS422 Rx -
4	+12 VDC in	8	RS422 Rx +

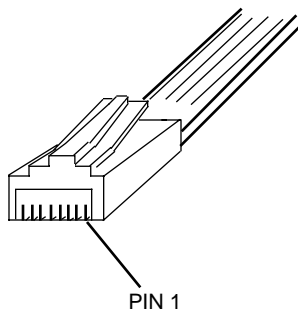
RS-422 Serial Port

A second RS422 port that can be used to support other equipment. These I/O lines are connected to 8 way RJ socket as shown below.

JP2 Pin	Function	JP2 Pin	Function
1	RS422 Tx +	5	-
2	RS422 Tx -	6	-
3	-	7	RS422 Rx -
4	-	8	RS422 Rx +

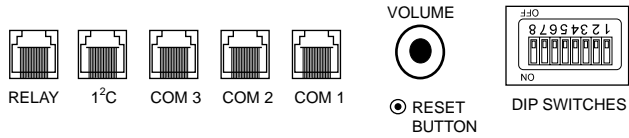
RS-232 Serial Port

An RS-232 port that can be used for such things as keyboard to keyboard key definition download/upload. These I/O lines are connected to four-pin RJ socket JP3 as shown below.



JP3 Pin	Function
4	Gnd
3	-
2	RS-232 RX In
1	RS-232 TX Out

Appendix C. Keyboard Connector Pin-Outs (Continued)



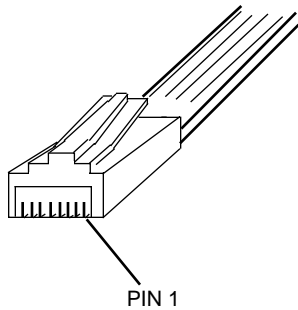
I²C Bus Port

This special port will be used in future for expansion of keyboard functionality - it is not available for use as a general purpose serial communications port. These I/O lines are connected to six-pin RJ socket JP4 as shown below.

JP4 Pin	Function
6	+5 VDC Out
5	+5 VDC Out
4	Gnd
3	SDA In/Out
2	Gnd
1	SCL In/Out

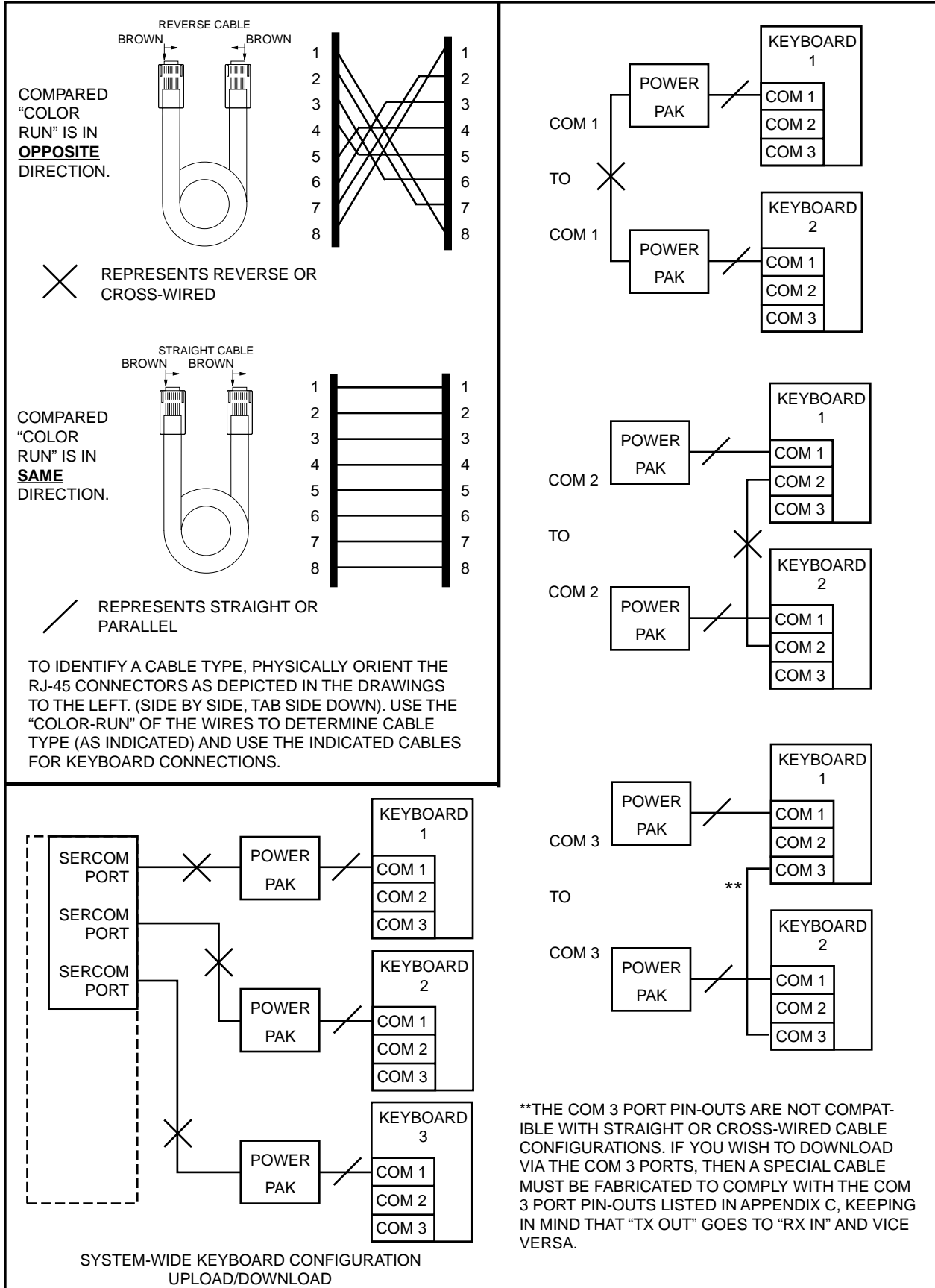
Relay Port

Supported by Relay RE1 and RE2 as defined by user (1 Amp internal relay rating). Relay contacts appear at six-pin RJ socket JP5, and are connected as follows:

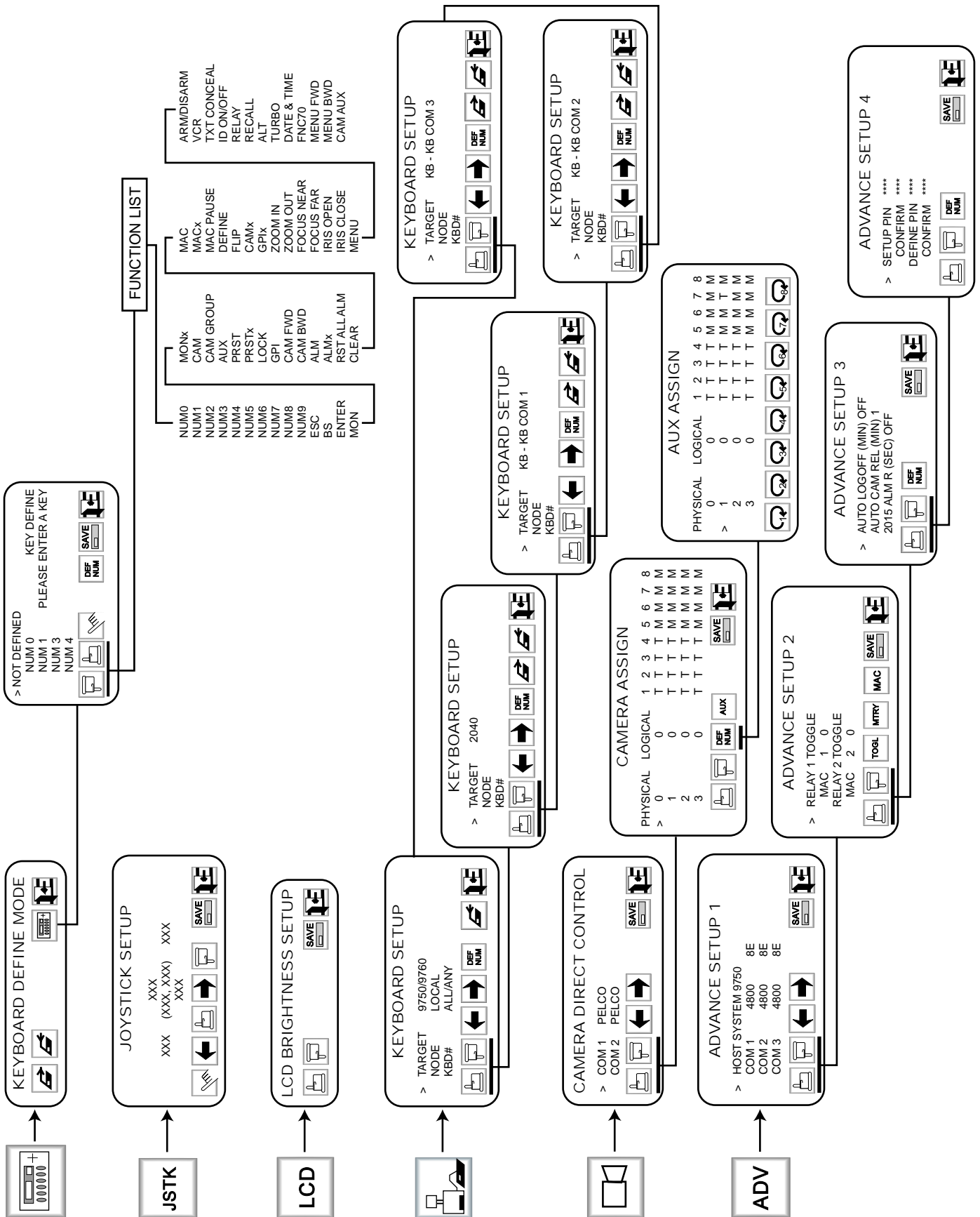


JP5 Pin	Function
6	RE2 Normally Open
5	RE2 Normally Closed
4	RE2 Common
3	RE1 Normally Open
2	RE1 Normally Closed
1	RE1 Common

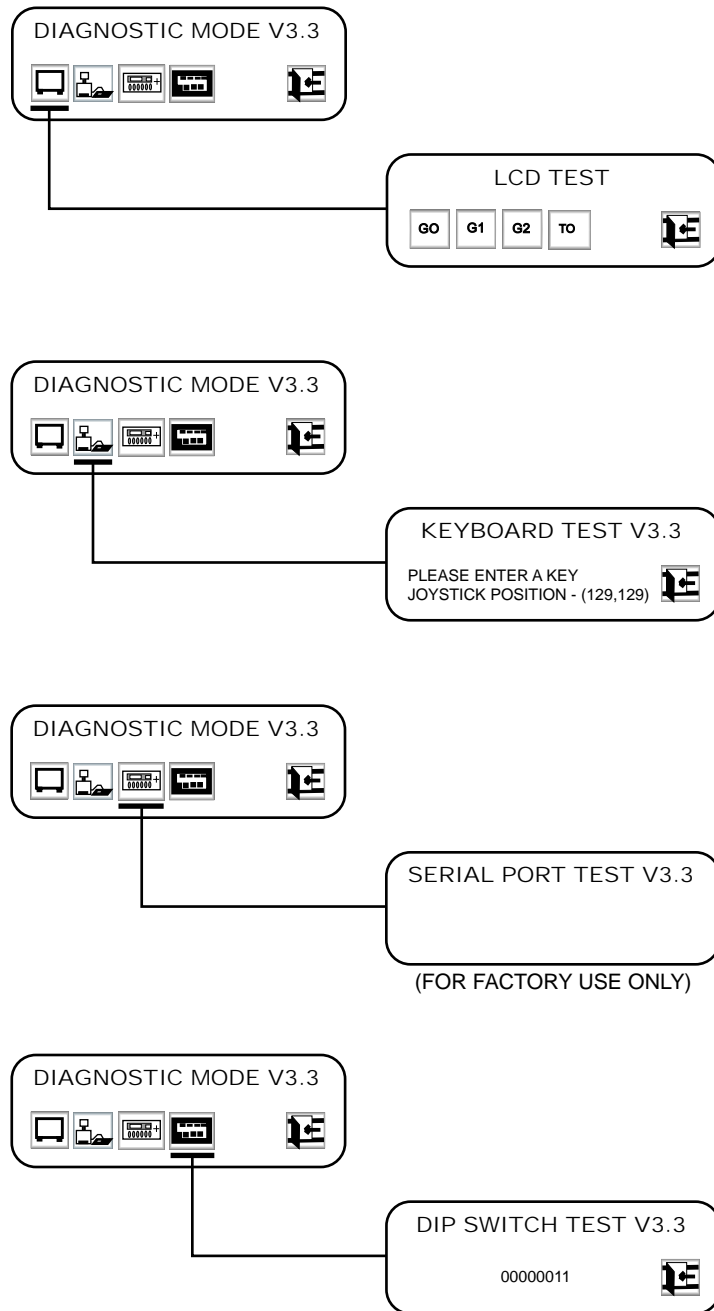
Appendix D. Keyboard-to-Keyboard Cabling Connections



Appendix E. Setup Mode Menu Tree (DIP Switch 2 ON)



Appendix F. Diagnostic Mode Menu Tree (DIP Switch 1 ON)



Appendix G. CM9760-KBD Specifications

ELECTRICAL

Input Voltage:	12 VDC from 120 or 230 VAC, 50/60 Hz (+10%) power pack
Power Consumption:	400 mA
Communications:	RS-422, full-duplex
Operating Distance:	For direct control operation, Up to 3,900 ft (1.2 km) on 24-gauge wire (0.5 mm)
Connectors:	Two 8-pin RJ-45 connectors (female) Both RS-422 serial ports One 4-pin RJ-45 connector (female) RS-232 serial port Two 6-pin RJ-45 connectors (female) One I ² C bus port for future expansion One relay port

OPERATIONAL

Joystick:	Proportional
Display:	Four-line, backlit LCD for programming and control
LCD Menu Display:	Six multipurpose function keys for LCD menu selection
Numerical Input:	Ten-key numeric keypad with two additional keys for camera and monitor selection
Control Keys:	Twenty-four user definable control keys
Function Controls:	Six keys for function controls
Lens Control:	Three keys for zoom, iris and focus control

GENERAL

Operating Temperature:	14° to 122°F (-10° to 50°C)
Dimensions:	15.53" W x 3.3" H x 7.8" D (39.45 cm x 8.38 cm x 19.81 cm)
Shipping Weight:	4.59 lb (2.08 kg)

(Design and product specifications subject to change without notice.)

8.0 WARRANTY AND RETURN INFORMATION

WARRANTY

Pelco will repair or replace, without charge, any merchandise proved defective in material or workmanship for a period of one year after the date of shipment. Exceptions to this warranty are as noted below:

- Three years on Genex™ Series multiplexers.
- Two years on all standard motorized and fixed focal length lenses.
- Two years on Legacy®, Intercept®, PV1000 Series, CM6700/CM8500/CM9500/CM9750/CM9760 Matrix, Spectra™, DF5 Series and DF8 Fixed Dome products.
- Two years on WW5700 series window wiper (excluding wiper blades).
- Two years on cameras.
- Six months on all pan and tilts, scanners or preset lenses used in continuous motion applications (that is, preset scan, tour and auto scan modes).

Pelco will warranty all replacement parts and repairs for 90 days from the date of Pelco shipment. All goods requiring warranty repair shall be sent freight prepaid to Pelco, Clovis, California. Repairs made necessary by reason of misuse, alteration, normal wear, or accident are not covered under this warranty.

Pelco assumes no risk and shall be subject to no liability for damages or loss resulting from the specific use or application made of the Products. Pelco's liability for any claim, whether based on breach of contract, negligence, infringement of any rights of any party or product liability, relating to the Products shall not exceed the price paid by the Dealer to Pelco for such Products. In no event will Pelco be liable for any special, incidental or consequential damages (including loss of use, loss of profit and claims of third parties) however caused, whether by the negligence of Pelco or otherwise.

The above warranty provides the Dealer with specific legal rights. The Dealer may also have additional rights, which are subject to variation from state to state.

If a warranty repair is required, the Dealer must contact Pelco at (800) 289-9100 or (559) 292-1981 to obtain a Repair Authorization number (RA), and provide the following information:

1. Model and serial number
2. Date of shipment, P.O. number, Sales Order number, or Pelco invoice number
3. Details of the defect or problem

If there is a dispute regarding the warranty of a product which does not fall under the warranty conditions stated above, please include a written explanation with the product when returned.

Ship freight prepaid to: Pelco
300 West Pontiac Way
Clovis, CA 93612-5699

Method of return shipment shall be the same or equal to the method by which the item was received by Pelco.

RETURNS

In order to expedite parts returned to the factory for repair or credit, please call the factory at (800) 289-9100 or (559) 292-1981 to obtain an authorization number (CA number if returned for credit, and RA number if returned for repair). Goods returned for repair or credit should be clearly identified with the assigned CA/RA number and freight should be prepaid. All merchandise returned for credit may be subject to a 20% restocking and refurbishing charge.

Ship freight prepaid to: Pelco
300 West Pontiac Way
Clovis, CA 93612-5699

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